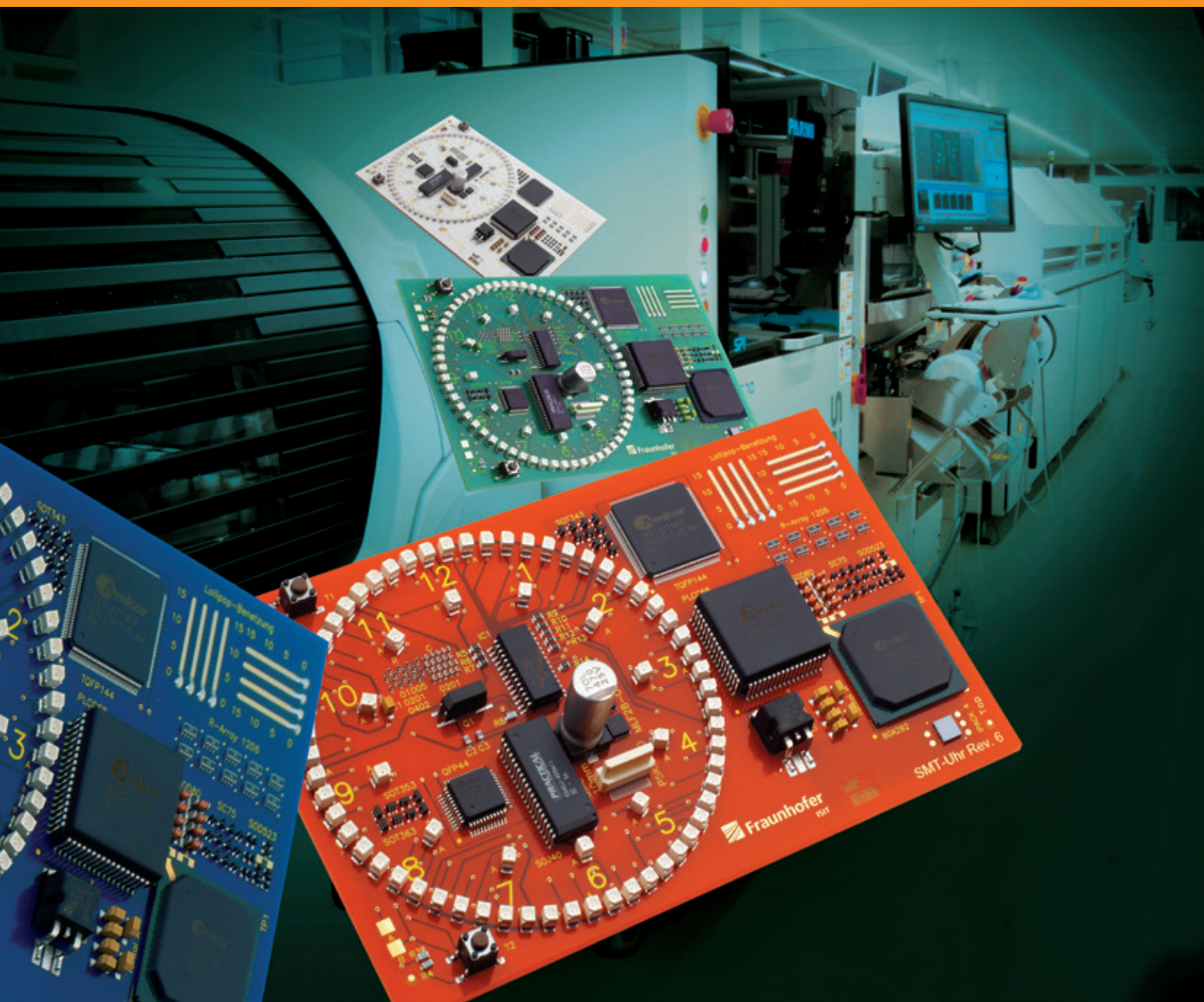
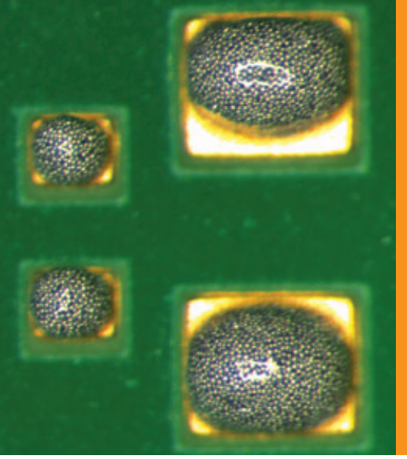
Fraunhofer
ISIT

FRAUNHOFER-INSTITUT FÜR SILIZIUMTECHNOLOGIE ISIT

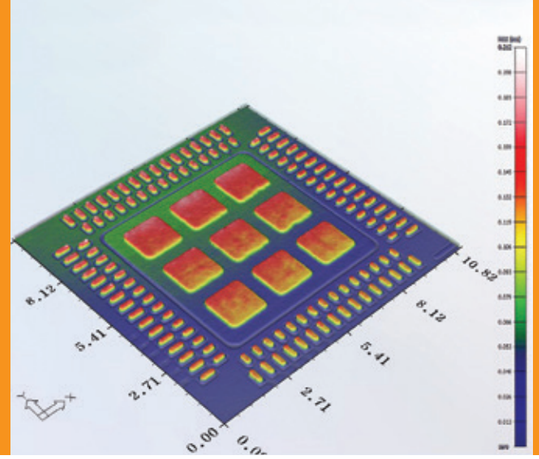
APPLICATION CENTER FOR ELECTRONIC ASSEMBLIES

| INNOVATIVE MANUFACTURING TECHNOLOGIES | PROCESS OPTIMIZATION |
| MANUFACTURING OF FUNCTIONAL SAMPLES | TECHNOLOGY TRANSFER | PROFESSIONAL TRAINING |

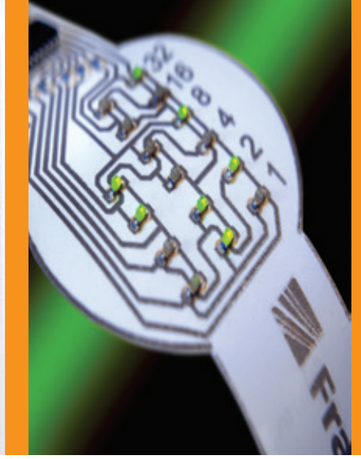




Jetprint of soldering paste depots



3D-soldering paste inspection



Printed electronics on flexible substrate

Resistors sized 01005 to 0402

THT-solder joint with fatigue crack

Training in the application center

ISIT APPLICATION CENTER FOR PROCESS TECHNOLOGIES IN MANUFACTURING ELECTRONIC ASSEMBLIES

ISIT SMD-Line

Stencil printing, screen printing, jet printing, dispensing

- Application of solder pastes, solder flux, adhesives and underfill materials
- Automated and manual processes
- Pin-In-Paste-manufacturing, Pump-Print- and Step-printing processes
- Printing of glass fritt paste on waferlevel
- Processing of 8“-wafers (incl. Taiko-process)

Inspection of solder pastes (manually, automated 2D-, 3D), 3D-Inline SPI

- Closed-Loop high resolution 3D solder paste inspection system

SMD-placement system

- Automatic, semi-automatic, and manual SMD-placement system
- Handling of components sized 0,2x 0,4 mm² to 40 mm edge length
- FlipChip-Mounting from wafflepack as well as from diced wafer

Reflow soldering

- Convection reflow soldering under defined nitrogen and air atmosphere
- Vacuum vapour phase soldering (low void soldering of power components)
- Multiple soldering processes by step soldering technology

Cleaning

- Automated semi-aquaeous cleaning of screen printing parts, misprinted circuit boards, soldering frames and assembled boards.

Inspection, non-destructive and destructive quality control and evaluation

- Evaluation of assemblies according to industrial standards (e.g. IPC-A610)
- Manual optical inspection by Ersascope, Stereo Magnifier, Microscope
- 2D- and 3D-X-ray inspection
- Scanning electron microscopy (SEM) and EDX material analysis
- Ultrasonic microscopy (SAM)
- Topographic measurement by laserprofilometer
- Electrical testing
- Mechanical testing
- Metallographic cross-section preparation and analysis
- Project related image documentation

ISIT Hybrid Technologies for Manufacturing of Printed Electronics

- Inkjet-, screen- and stencil printing techniques for manufacturing of printed circuit boards
- Handling and SMD-mounting of flexibel substrates
- Low-temperature bonding processes (adhesive bonding, sintering, conductive adhesion)

ISIT THT-Manufacturing

- Manual THT-assembly
- Inert gas wave soldering (lead free and leaded)
- Selective wave soldering (lead free and leaded)

ISIT Repair Center

Rework, repair and modification considering valid industrial standards. Manual and semi-automatic processes for manufacturing of THT- and SMD-components by infrared-, hot gas- and combined rework stations.

- Standardized handling of components and modules
- System selection for an optimized soldering process
- Rework, repair, and modification of complex assemblies
- Selective soldering for completion of assemblies
- Gentle repair soldering processes for electronic assemblies
- Quality control by optical and X-ray inspection as well as cross-section analysis
- Process training
- SMD- and THT- repair services
- Video documentation

ISIT Balling Center

- Manufacturing of all current substrates and single components incl. Taikowafer up to 8“
- Chemical NiAu UBM on wafer level
- Printing of fluxing agents
- Solder Balling
- Finepitch-solder paste printing of discrete and integrated circuits on wafer level
- Powerballing
- Convection- or (vacuum) vapour phase soldering

ISIT Workshops and In-House Offers

Periodically offered theoretical and practical workshops for manufacturing, quality evaluation and reliability of electronic assemblies.

Controllable manufacturing of electronic assemblies

Manufacturing quality, failure analysis, optimization of processes

Solder paste application

Technologies, optimization of processes, error prevention

Temperature measurement techniques

How to perform temperature accurate measurements

Optimization of reflow profiles

From heat flow in the soldering equipment to the ,optimized soldering profile

The optimized rework process

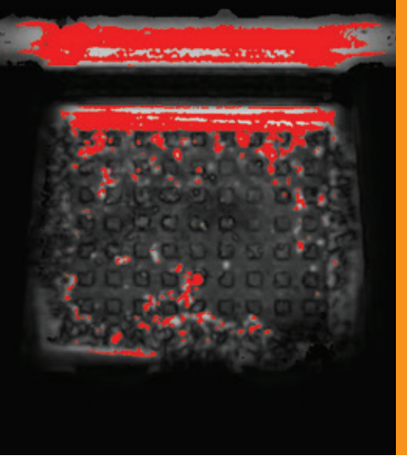
How to control the repair process safely

Wave soldering and selective soldering

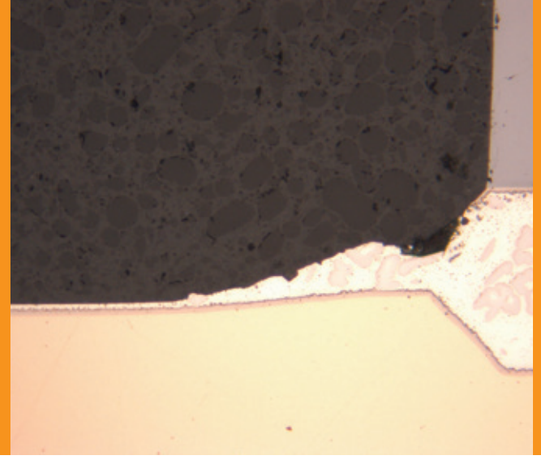
Technologies, error prevention by optimization of processes, evaluation of quality

Customer and Application Specific Offers

- Theoretical and practical customized In-House workshops
- Technology days
- Manual soldering

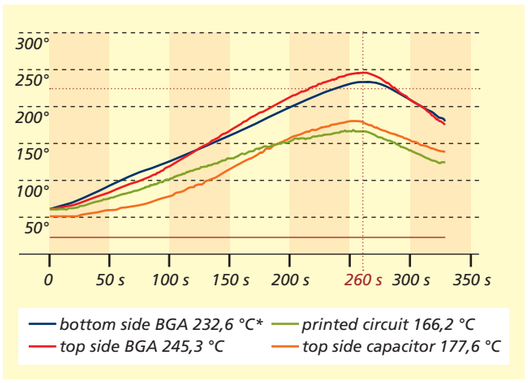


Delamination (red) in the package of an IC



Cross section of a reflow loaded IC

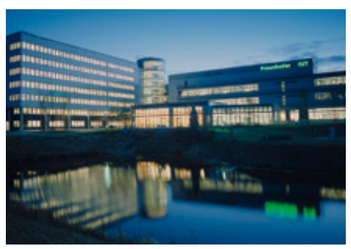
Temperature profile measurement



ISIT Application Center Service Offers

- Evaluation, assessment, optimization, testing, and implementation of (innovative) technologies for manufacturing of electronic assemblies
- Processing of rigid and flexible substrates
- Enhancement of processes and process techniques, manufacturing machines, tools and auxiliary materials
- Technical certification of manufacturing facilities
- Benchmark tests
- Lead-free and leaded SMD- and THT processes (as well as eutectic AuSn soldering)
- Design for manufacturing, approval of manufacturing specific design
- Qualification and optimization of soldering profiles for in-line, selective and repair soldering processes
- Generation of application notes (footprint design, recommendation of repair soldering processes)
- Assembling and development of prototypes, functional samples and pre-series
- Neutral validation of manufacturing processes
- Assistance to implementation of novel products and manufacturing processes
- Technology and process transfer to customized manufacturing processes
- Support to conversion of manufacturing processes
- Testing of manufacturing parameters for RoHS conformity
- Qualification of components and materials, e.g. soldering heat resistance
- Moisture Sensitivity Level (MSL)-tests according to J-STD 020
- Validation of soldering pastes considering valid industrial standards
- Assistance to evaluation of suppliers performance
- Audit assistance
- Employee training

CONTACT



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